Concerning Possible Trajectories of Shot Wounding Governor Connally:

This study has been undertaken to determine the source of the shot which wounded Governor Connally. It seems to be the general contention of critics of the Warren Report that this shot was fired at Zapruder frame 236. There is also the possibility that it occurred at frame 226. Therefore, this study has two sub-tasks since it will determine the origin of a shot striking the Governor both at 226 and 236.

It is first necessary to ascertain the right to left angle of the bullet passing through the Governor's chest in addition to the axis of his chest in each frame. 226 will be studied first (refer to illustration #2). Connally's position at 226 was marked on a Dealey Plaza plat map and will be referred to as point 226. The line of sight from Zapruder to 226 was then drawn. A perpendicular to this line was drawn at 226 representing the position of the Governor's shoulders where they would be directly facing the camera at 226. The F.B.I. reconstruction of frame 226 (CE. 895 proports to be of 225 but the frame used was in fact 226) in addition to pictures of frames 222-240 were referred to. It was ascertained that the chest is in a position between the Zapruder line of sight perpendicular and a perpendicular to the lengthwise axis of the car, closer to the latter. The fourth road stripe was chosen to represent the lengthwise axis of the car and a line was drawn parallel to it but made to pass through 226 for easier measuring. A perpendicular to this line was drawn through 226 representing the axis of the chest where it would have been directly facing the front of the car. Lines were drawn 10 and 15 degrees from this one to represent the actual axis of chest in 226. Measurements on the Governor's jacket by the F.B.I. indicated the bullet transited his body on a right to left trajectory of 20 degrees (Archives, CD 827). This would be a 70 degree angle to the axis of the chest. This was confirmed by locating the wounds on an overhead view of the Governor in 226 and 236, connecting the entrance and exit wounds of the chest and measuring the angle (see illustration #1). This measurement was transfered to illustration #2. A line from 226 at a 70 degree angle to the axis of the chest, if extended, would obviously lead right up to the origin of the shot. This was done with a 5 degree allowance for error in determining the exact axis of the chest. It was determined that shot striking the Governor at 226 would have originated from a far east window on the south face of the Texas School Book Depository.

Next 236 was studied. Frame 236 shows that the Governor's chest is directly facing Zapruder. The Zapruder line of sight was drawn on another Dealey Plaza plat map and a perpendicular was drawn to this at 236 to represent the axis of the chest. A line 5 degrees to the left was drawn in allowing for error (see illustration #3). The car axes were also drawn. A line from 236 to a 70 degree angle to the axis of the chest, if extended, would again lead to the origin of the shot. The 5 degree

margin of error was again observed. It was determined that a shot striking the Governor at 236 would have originated from the far north corner on the west face of the Dallas County Records Building, probably from the roof since there are no windows at that point.

Angular measurements from illustrations #2 and 3 were taken and transfered to a separate sheet of paper for easier reference (illustration #4). The following information was ascertained: 1. a bullet wounding the Governor at 226 would have travelled on a right to left trajectory of approximately 5 to 10 degrees to the lengthwise axis of the car; 2. at 226, the axis of the Governor's chest was at a 75 to 80 degree angle with the lengthwise axis of the car; 3. at 226, Zapruder filmed the Governor's chest at a 57 to 62 degree angle and the lengthwise axis of the car at a 137 degree angle; 4. a bullet wounding the Governor at 236 would have travelled on a right to left trajectory to approximately- 19 to- 24 degrees to the lengthwise axis of the car; 5. at 236, the axis of the Governor's chest was at a 41 to 46 degree angle with the lengthwise axis of the car; 6. at 236, Zapruder filmed the Governor's chest at an 85 to 90 degree angle while the lengthwise axis of the car had not changed significantly for measurement; 7. the source of a bullet wounding the Governor is conclusively determined by the constant of a 70 degree path through the chest (as measured from the axis of the chest) and the variables a) the particular Zapruder frame in which the shot occurred and b) the axis of the chest at that frame.

The significance of this study is that it establishes that the source of the Connally shot changes considerably between frames 226 and 236. A shot at 226 would definitely have come from the far east window on the south face of the TSBD, most probably the sixth floor window. A shot at 236 would definitely have originated from an entirely different building, the Dallas County Records Building, from the roof since the absence of windows in that area precludes any other level.

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